

SUPPORT FOR THE AMENDMENTS

Support for the amendment of Claim 1 is found on page 2, lines 10-12, and page 8, lines 27-30, in the specification.

Claims 2-3 and 9 are amended to use proper antecedent basis relative to Claim 1.

Claim 4 is canceled.

Claims 14 and 15 are new and are supported on page 8, lines 30-38, in the specification.

No new matter is believed added to this application by entry of this amendment.

Upon entry of this amendment, Claims 2-3, 9, 14 and 15 are active.

REMARKS/ARGUMENTS

The currently claimed invention is directed to an aqueous paper size composition. Such paper size agent is employed in the preparation of paper, board and cardboard for the purpose of providing a surface suitable for the application of inks to obtain a printing image of good quality. Improvement in printing surface quality of paper, board and cardboard through the use of an improved aqueous paper size agent is sought.

The claimed invention addresses this problem by providing an aqueous paper size composition according to Claim 1 as herein amended and claims dependent thereon. Such a paper size composition is neither disclosed nor suggested in the cited reference.

Applicants respectfully note that Claim 1 is herein amended to include the description: "An aqueous paper size composition consisting of: a polymer dispersion based on copolymers of vinylaromatics and butadiene, and at least one complexing agent; . . ."

The rejection of Claims 1-4, 9 and 10 under 35 U.S.C. 103 (a) over Giesecke et al. (U.S. 6,489,382) is respectfully traversed.

The cited reference does not disclose or suggest an **aqueous paper size composition consisting of** the components as described in Claim 1.

Giesecke is directed to a composition comprising **at least one particulate solid** and a water-dispersible graft copolymer built up from at least one hydrophobic, ethylenically unsaturated monomer, optionally one or more ethylenically unsaturated hydrophilic monomers, and at least one natural protective colloid or protective colloid obtained from a natural protective colloid by derivatization or thermal, enzymatic, oxidative, hydrolytic or bacteriological degradation having an average molar mass of $M_n > 500$ g/mol. (Claim 1)(Bold added).

The reference composition is **a preparation of a pigment, water-insoluble dye or brightener particle (Col. 2, lines 27-29) which is surface treated with the water-dispersible graft copolymer.** The compositions obtained in this manner are optionally mixed with other additives and dried to form solid compositions (Col. 23, lines 3-24) notable for compatibility with hydrophobic media, especially organic hydrophobic media (Col. 24, lines 5-8).

The reference describes preparation of the pigment dispersion by polymerizing the monomer components in the presence of the colorant beginning at Col. 8, line 11 and continuing to Col. 10, line 4. Example 1 describes the specific preparation of a dispersion of the pigment of Formula IX by polymerizing a monomer composition in the presence of the pigment.

Example 8 of the reference describes preparation of a polymer dispersion based on a mixture of styrene, n-butylacrylate and acrylic acid, a composition which is not consistent with the claimed composition (no butadiene or isoprene).

Nowhere does this reference disclose or suggest preparation of a paper size composition as described in Claim 1 of the present invention.

The Examiner has acknowledged that Giesecke is silent with regard to particle size and alleges that the polymerization process disclosed in the reference is understood to produce polymer particles. Stating that the “particle sizes claimed are conventional and obtainable with the use of the colloids and surfactants disclosed within the patent” (page 3, lines 7-10), the Examiner appears to equate obtaining the required particle size to a result of routine experimentation.

However, Applicants respectfully point out that in order for a parameter to be the result of routine experimentation, it must be recognized as a result effective variable. (*In re Antonie*, 195 USPQ 6 (CCPA 1977)) Giesecke provides no guidance relative to particle size and does not suggest any particle size range for the polymer dispersion. As this material is intended to be isolated and dried, particle size is not a result effective variable in this pigment dispersion technology. The Examiner has not explained how or why the description in Giesecke would have led a person having ordinary skill in the art to the subject matter claimed.

In the following excerpt from the Office’s own discussion of “**Examination Guidelines for Determining Obviousness Under 35 U.S.C. 103 in View of the Supreme Court Decision in *KSR International Co. v. Teleflex Inc.***” the Office has stated:

“The rationale to support a conclusion that the claim would have been obvious is that all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded nothing more than predictable results to one of ordinary skill in the art at the time of the invention.”⁴³ “[I]t can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does.”⁴⁴ **If any of these findings cannot be made, then this rationale cannot be used to support a conclusion that the claim would have been obvious to one of ordinary skill in the art,”** (Federal Register, Vol. 72, No. 195, page 57529) **(Bold added)**

Applicants respectfully submit that the cited reference does not describe an aqueous paper size composition consisting of the components recited in Claim 1 nor does it disclose or suggest the required particle size. Furthermore, motivation that would have lead one of ordinary skill in the art at the time of the invention to the claimed subject matter has not been identified.

In contrast, Applicants have recited that in the inventive aqueous paper size composition the mean particle size of the dispersed polymer particles is from 50 to 100 nm.

Moreover, Applicants have shown significant improvement in paper sizing performance obtained according to the claimed invention in comparison to the conventional art, in the table on page 15 of the specification. The table is again reproduced below for the Examiner's convenience.

Size prepared according to	Cobb / g/m ²	Ink flotation time / min.
Example 1	27	35
Example 2	33	35
Comparative example 1	92	0
Comparative example 2	106	0
Comparative example 3	48	7
Comparative example 4	40	12
Comparative example 5	55	4

Comparative examples 1-5 represent conventional sizes for paper as described. Applicants note that Comparative Examples 2 and 3 represent examples 1 and 3 respectively of EP 0735065, Comparative Example 3 represents example 1 of EP-0257412, Comparative example 4 represents example 2 of JP 58/115196 and Comparative Example 5 represents example 2 of EP 0307816. Low Cobb values and high ink flotation times are favorable

indication of good paper sizing performance. As shown in the table, the examples of the claimed invention show significant improvement in both Cobb values and Ink flotation time relative to conventional art.

Applicants respectfully submit that the cited references does not disclose or suggest all the elements of the claimed invention, does not provide motivation to change the description of the reference to arrive at the claimed invention and reasonably would not have suggested the results obtained in terms of paper size performance obtained according to the claimed invention. Therefore, according to the Office guidelines above, a conclusion of obviousness cannot be supported.

In view of the above, Applicants respectfully request withdrawal of the rejection of Claims 1-4, 9 and 10 under 35 U.S.C. 103 (a) over Giesecke.

The rejection of Claim 4 under 35 U.S.C. 112, second paragraph is moot in view of the cancellation of Claim 4, herein.

Applicants respectfully submit that the above-identified application is now in condition for allowance and early notice of such action is earnestly solicited.

Respectfully submitted,

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